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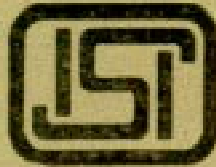


IS : 5220 - 1969

(Reaffirmed 2002)

Indian Standard
SPECIFICATION FOR
FORGED HORN CLEATS

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

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Indian Standard

SPECIFICATION FOR FORGED HORN CLEATS

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Indian Standard

SPECIFICATION FOR FORGED HORN CLEATS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 26 August 1969, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Horn cleats form part of the rigging and mooring outfit fitted on board ships.

0.3 This standard is based on the following standards issued by Polski Komitet Normalizacyjny:

PN W-89095-1950 Rozki poktadowe pojedyncze bez podstawy (Single horn cleat — welded type)

PN W-89096-1950 Rozki poktadowe pojedyncze z podstawą (Single horn cleat — bolted type)

PN W-89097-1950 Rozki poktadowe podwójne lekkie (Double horn cleat — bolted type)

PN W-89098-1950 Rozki poktadowe podwójne bez podstawy (Double horn cleat — welded type)

PN W-89099-1950 Rozki poktadowe podwójne z podstawą (Double horn cleat — bolted type)

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies the materials and dimensions for forged horn cleats, for direct welding and for bolting on to the equipment.

*Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 **Horn Cleat** — Horn cleat is a particular type of hook fitted or welded to gunwale, masts, flagposts, davits, etc, so as to facilitate in securing halyards and load taking ropes of rigging and mooring.

3. DESCRIPTION

3.1 Horn cleats are of the following two types:

- a) Single horn cleat, and
- b) Double horn cleat.

In both types they may be directly welded or they may be secured in place by means of countersunk screws or rivets.

4. MATERIAL

4.1 Horn cleats shall be forged out of material conforming to Grade 2 of IS: 1875-1966*. The minimum tensile strength and percentage elongation shall not be less than 41 kgf/mm² and 21, respectively.

5. DIMENSIONS

5.1 The shape and dimensions of single horn cleats shall be as given in Tables 1 and 2.

5.2 The shape and dimensions of double horn cleats shall be as given in Tables 3 to 5.

5.3 The dimensions for countersinks shall be according to Type A of IS: 3406-1966†.

5.4 Slotted countersunk head screws shall be according to IS: 1365-1968‡.

6. TOLERANCES

6.1 The tolerance on dimension d shall be $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$ mm.

6.2 The tolerance on other dimensions shall be according to coarse series of IS: 2102-1962§.

6.3 The tolerance on holes for securing metric bolts shall be according to IS: 1821-1967||.

*Specification for carbon steel billets, blooms and slabs for forgings (revised).

†Dimensions for countersinks and counterbores.

‡Specification for slotted countersunk head and slotted raised countersink head (diameter range 1.6 to 20 mm) (second revision).

§Recommendations for machining deviations for dimensions without specified tolerances.

||Dimensions for clearance holes for metric bolts (first revision).

7. DESIGNATION

7.1 Horn cleats shall be designated by its type, method of attachment, dimension d and the number of this standard.

Example:

Single horn cleat weldable type of base dimension ' d ' = 25 mm shall be designated as:

Single Horn Cleat Weldable 25 IS:5220.

8. MARKING

8.1 Each horn cleat shall be marked with the manufacturer's name, registered trade-mark or identification mark.

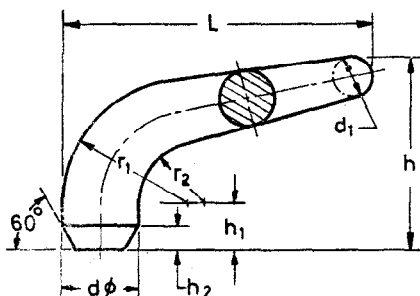
8.1.1 Horn cleats may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

TABLE 1 DIMENSIONS FOR SINGLE HORN CLEAT — WELDABLE TYPE

(Clause 5.1)

All dimensions in millimetres.

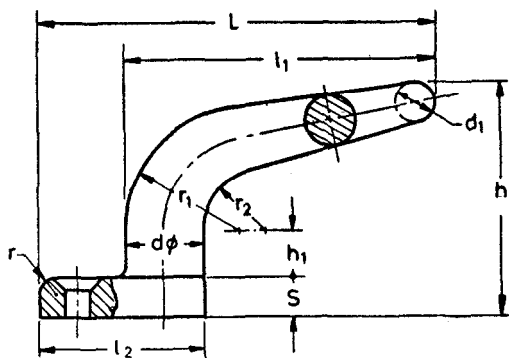
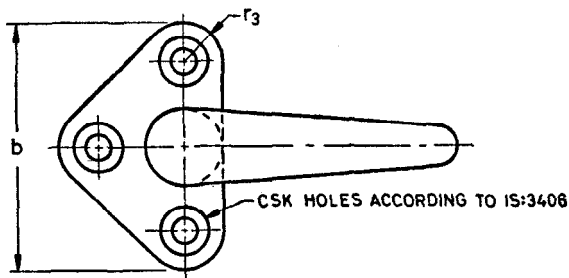


d	d_1	h	h_1	h_2	L	r_1	r_2	APPROXIMATE WEIGHT kg
12	7	32	8	4	50	20	10	0.035
16	8	40	10	5	63	25	12	0.072
20	10	50	12	6	80	32	16	0.142
25	12	63	16	7	100	40	20	0.276
32	16	80	20	9	125	50	25	0.575
40	20	100	25	12	160	63	32	1.14

TABLE 2 DIMENSIONS FOR SINGLE HORN CLEAT — BOLTED OR RIVETED TYPE

(Clause 5.1)

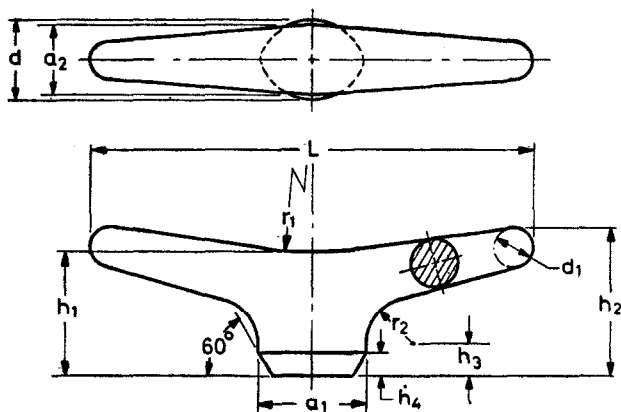
All dimensions in millimetres.



d	b	d_1	h	h_1	L	l_1	l_2	r	r_1	r_2	r_3	S	COUNTER-SUNK SCREWS	APPROXIMATE WEIGHT kg
12	38	7	38	8	64	50	26	2	20	10	7	6	M5	0.066
16	50	8	48	10	81	63	34	3	25	12	9	8	M5	0.142
20	64	10	60	12	102	80	42	4	32	16	10	10	M6	0.277
25	84	12	75	16	130	100	55	5	40	20	13	12	M10	0.553
32	110	16	94	20	165	125	72	5	50	25	17	14	M12	1.14
40	136	20	116	25	208	160	88	6	63	32	20	16	M12	2.12

TABLE 3 DIMENSIONS FOR DOUBLE HORN CLEATS — WELDABLE TYPE*(Clause 5.2)*

All dimensions in millimetres.

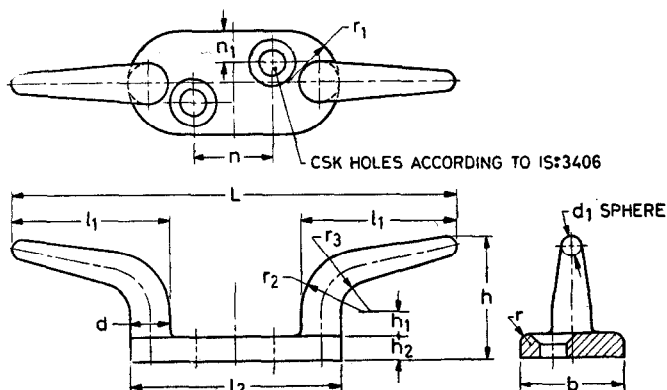
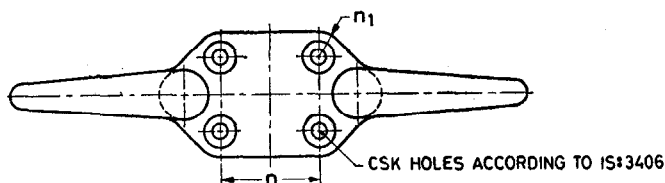


d	a_1	a_2	d_1	h_1	h_2	h_3	h_4	L	r_1	r_2	APPROXIMATE WEIGHT kg
20	20	18	10	32	38	8	6	114	100	12	0.195
25	35	22	12	40	48	10	7	142	125	16	0.353
32	45	28	16	50	60	12	9	182	160	20	0.782
40	56	35	20	63	76	16	12	228	200	25	1.51
50	70	44	24	80	95	20	15	286	250	32	2.96
63	88	56	32	100	120	25	19	360	315	40	5.99

TABLE 4 DIMENSIONS FOR DOUBLE HORN CLEATS—BOLTED OR RIVETED TYPE

(Clause 5.2)

All dimensions in millimetres.

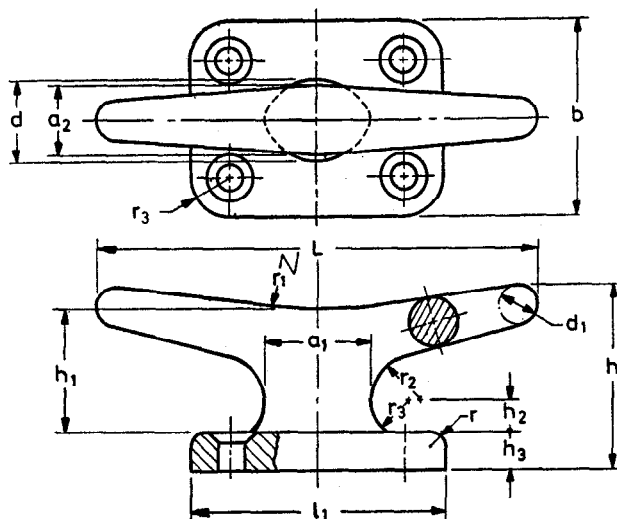
FOR $d=12$ TO 20 FOR $d=25$ TO 40

d	b	d_1	h	h_1	h_2	L	l_1	l_2	n	n_1	r	r_1	r_2	r_3	COUNTER-SUNK SCREW	APPROXIMATE WEIGHT, kg
12	32	7	40	8	8	140	50	64	24	10	3	16	20	10	M6	0.179
16	42	8	50	10	10	180	63	86	32	13	4	21	25	12	M10	0.385
20	54	10	62	12	12	230	80	110	40	17	5	27	32	16	M12	0.765
25	70	12	78	16	15	280	100	130	60	13	5	—	40	20	M10	1.38
32	84	16	98	20	18	340	125	154	70	17	6	—	50	25	M12	2.57
40	100	20	122	25	22	420	160	180	80	20	6	—	63	32	M12	4.70

TABLE 5 DIMENSIONS FOR DOUBLE HORN CLEATS WITH OVAL BASE — BOLTED OR RIVETED TYPE

(Clause 5.2)

All dimensions in millimetres.



d	a_1	a_2	b	d_1	h	h_1	h_2	h_3	L	l_1	r	r_1	r_2	r_3	COUNTERSUNK SCREWS	APPROXIMATE WEIGHT kg
20	28	18	50	10	48	32	8	10	114	65	4	100	12	10	M6	0.341
25	35	22	60	12	60	40	10	12	142	80	5	125	16	13	M10	0.771
32	45	28	80	16	74	50	12	14	182	100	5	160	20	17	M12	1.61
40	56	35	100	20	92	63	16	16	228	130	6	200	25	20	M12	3.10
50	70	44	120	24	113	80	20	18	286	160	6	250	32	20	M12	5.70
63	88	56	150	32	141	100	25	21	360	200	8	315	40	25	M16	11.1

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